

Three DSD DACs

FOLLOWING LAST ISSUE'S FEATURE ON THE RETURN OF DSD AS A HI-RESOLUTION COMPUTER AUDIO FORMAT, ANDREW HARRISON TRIES OUT THREE INEXPENSIVE DSD-COMPATIBLE DACS

SACD may have come and nearly gone, but the DSD (Direct Stream Digital) audio format it carries has returned, and is now relatively simple to play directly from a PC. Besides a clutch of DSD music files, a computer and a hi-fi system, a recent DAC that supports the DSD-over-USB standard (DoP 1.0 or higher) will be needed, but that doesn't have to be costly.

While it's possible to spend many thousands of pounds for a high-end PCM DAC, the cheapest DSD-capable DAC (the TEAC UD-501) is currently just £699, while the Mytek Stereo192-DSD costs about £1100, and the Benchmark DAC2 HGC around £1700. (Not reviewed but well worth checking out is Chord Electronic's diminutive £1000 QuteHD DAC.)

All three USB DACs here will also integrate perfectly with most existing digital sources, thanks to an array of S/PDIF, Toslink and even AES3 digital inputs. All have ¼-inch headphone outputs too, which may be useful. Both the Benchmark and Mytek DACs originate from pro audio, are built around half-width 1U rack chassis, and have variable line outputs and analogue inputs that effectively turn them into digital pre-amps. Their capabilities as DACs is particularly impressive, whether on 16-bit CD, the expanding number of 24-bit PCM recordings, or the more intriguing world of DSD.

The Review System

Listening tests were carried out using a stereo system consisting of a Music First passive controller, Chord SPM 1200C power amplifier and Bowers & Wilkins 802D loudspeakers. Computer playback used two generations of Mac Mini: mid-2011 with 2.7 GHz Intel Core i7 dual-core, and late 2012 with 2.6 GHz Intel Core i7 quad-core. Both were fitted with 16 GB Crucial memory and were running OS X 10.8.4 from internal SSDs. Playback software was Audirvana Plus 1.5.3-6. Music was played from a remote NAS, a Synology DS1010 with 10TB in RAID 5. All audio cables were Nordost Valhalla; Atlas Cables and The Chord Company kindly supplied USB cables.

Mytek Stereo192-DSD

This intriguing little DAC is available in three versions. The most domestically suited configuration is probably the *Silver-Pre-Version* with an additional analogue input. At the pro-audio end is the *Black Mastering* edition, which exchanges stereo RCA analogue inputs for BNC S/PDIF, to interface with DSD studio kit.

Between these two is the *Black Preamp* version we reviewed, loaned by retailer Mains Cables R Us. This has the same hardware specification as the *Silver-Pre-*, with the addition of four-LED fascia level meters. We're assured that all three units run the same firmware, cost and sound the same.

The half-width unit has a display spells out the incoming sample frequency (or simply 'DSD' when appropriate), or the level when the volume control is active. A Menu button in conjunction with rotary encoder knob steps through a large selection of options: input source; upsampling; filters; volume control type and trim; remote; display; and firmware. Two additional fascia buttons can be user-set as shortcuts to, for example, mute and phase.

Volume control can be bypassed altogether (for just-perceptible better sound), or switched to Analog or Digital. The latter has some of that typically enervating effect from a few dB steps down, but the stepped-resistor analogue attenuator proved very useful, for example trimming down volume in late-night listening to give fine control below the available minimum on the Music First pre-amp. The 1/4in headphone jack volume can be adjusted independently of the line out, simply by clicking the encoder knob before twizzling.

Familiar digital inputs are one each of RCA/phono co-axial, Toslink optical and XLR balanced, plus two USBs. USB1 is an older USB 1.1 port which can be used with any *Windows* PC or Mac without drivers, for up to 24-bit/96kHz operation; the USB 2.0 port does require proprietary driver installation for both platforms, but is then good for 24-bit/192kHz and DSD64 formats. More unusual for consumer DACs is a FireWire input, an asset which contributed to this DAC's finest sound mode. Outputs include one stereo pair of balanced XLRs and one stereo pair of RCA/phonos, alongside one word clock input and output on BNCs.

The casework is all metal plates neatly screwed together, definitely of the functional rather than stylish school, but with a studied quality that rather becomes it. Power supply is internal and linear, the regional voltage selected by jumpers inside.

At heart the Mytek uses the popular 32-bit ESS *Sabre ESS9016S* chip, wired with four of its internal converters per stereo channel for best low-noise performance. This solution provides native DSD conversion from its ESS *HyperStream* modulator, a highly refined variation on sigma-delta technology. A TCAT Digital Interface Communications Engine (DICE) chip takes care of FireWire integration, and clock recovery is handled by the well-regarded TC *JetPLL*.

Sound Quality

From the first 24-bit PCM recording, the Mytek immediately galvanised me with the blackness behind its sound, which remained inky as the percussive shaker opened Jimmy Smith's *Carpetchaggers*. There was real immediacy to a sound that had genuine reach-out-and-touch tangibility. Extreme ambient cues appeared from beyond the speaker boundaries, setting a complete performance space alongside that of the listening room. When jazz brass was whipped up, the effect was scary: it was the kind of experience you might get if sat a few feet away from a real blown horn.

Extended harmonics could be heard from plucked banjo strings on *Journey of the Sorcerer*, alongside the exact pitch of those twangy notes as they decayed. The bass player here mostly plays simple single notes, but occasionally throws in a note an octave down. The Mytek revealed that variation by letting the ear hear the new fundamental, where other DACs had been more ambivalent.

Regular PCM digital audio was handled with ridiculous ease. A 16-bit CD rip of *The Wall Live 1980-81* showed nuances hitherto lost to my regular and longstanding three-box dCS front end, specifically the ability to delineate individual's singing contributions in dense vocal sections.

However, DSD was the reason why this DAC was invited, and DSD was where it really shone. A great sample that showed its mettle was *Fortune Plango Vulnera*, comprising Latin chant, piano and percussion. The recording was immediately transporting, an overwhelming sense of low-frequency room reverberation evident barely before the music had started. The piano here was perhaps no louder in the mix, but was oh so audible whenever you wanted to hear its contribution. Underpinning that piano are bass drum strikes, one to the bar, their presence and effect clearly exposed.

The same track had been played through the TEAC, leading me to note the piece had been conducted too fast. Using the Mytek it didn't sound rushed, but was simply imbued with musical excitement.

As a parting comment on the Mytek sound, my obligatory playthrough of *Roundabout* from the Yes album *Fragile* left me thinking: this has the pace and vibrancy of an original red'n'plum Atlantic vinyl pressing. Better, it brought to mind the expectation of monitoring performances as they were being first laid down. Something to do with this DAC's time-domain resolution particularly when driven over the less common FireWire computer interface brought performances to life like no other.

Overall Conclusions

DSD playback is available from an expanding range of convertors, from the £699 TEAC UD-501 up to high-end units beyond this entry-level overview, such as those from Chord Electronics, dCS, Grimm and Weiss. However, my findings suggest it's not necessary to spend many thousands of pounds for a DAC that can make the best of PCM and DSD audio.

The TEAC packs features a-plenty and can handle DSD and 384 kHz PCM, but it came up short under audiophile scrutiny, sounding rather bloodless and rather betraying its budget pricing. Although it would have been great to describe this little David as a giant killer, it was simply outclassed by the competition here. Perhaps its off-the-shelf PCM1795 converters were not up to snuff – certainly these multi-bit advanced segment- architecture chips seem far from ideal for getting the best from DSD recordings. A hint of DSD audio liquidity is found here, but it's ultimately spoiled by a return to classic CD-esque digital sound. High-rate PCM material is similarly brought back from its potential thanks-to-digital grain, and a somewhat washed-out and less than entrancing mid band.

The Benchmark and Mytek convertors are quite similar in engineering, and are based on a curious rethink on traditional sigma-delta conversion using ESS's HyperModulator technology. This architecture seems to have restored the promised virtues of bit stream conversion, with great S/N ratio figures and avoiding the low-level artifice that has long had audiophiles returning to multi-bit for more musical results. The Benchmark gives music a luxurious but superbly detailed rendering. That tidiness is especially evident in DSD playback, where some hardware may get flustered by ultrasonic HF leaking into the playback system. There's no such distress here. Until latecomer Mytek joined the trio, this was the 'go to' DAC, enjoyed for its easy listening and natural unforced voicing.

But the sometimes brutal but respectfully honest Mytek was for this listener the clear winner, for my taste and in my not entirely pipe-and-slippers sounding system. It described the near tangible presence of musicians and instruments in the room with incredible speed and razor-sharp transients, yet these never sounded so raw as to impair the complete sound. I don't believe I was hearing transient ringing so much as a life-like speedy rise time, like a live feed from a mike mixer. It just edged the Benchmark DAC via its USB link, but then set a new standard for digital audio at home through its FireWire link, thanks to an electrifying absence of smear and defocusing. That incredible resolution really became apparent after hearing long-familiar CD albums free from time domain blurring, allowing insight into, for example, exactly who was singing which part in complex harmonies; or the finest detail of modulating pitch in decaying plucked and struck notes. The Mytek, especially via the FireWire interface, is the giant killer that's able to usurp far more expensive PCM DACs. The deal breaker is its uncanny way of turning DSD files into believable performances.

From HIFICRITIC: Volume 4 Number 3: July – September 2013

